

FIG. 1

FIG. 1

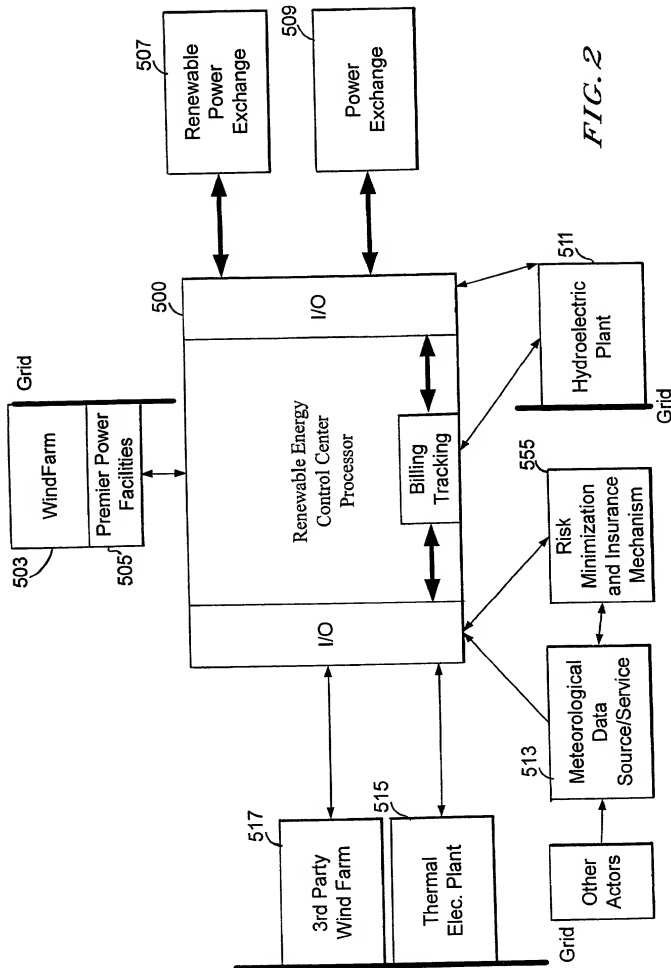


FIG. 2

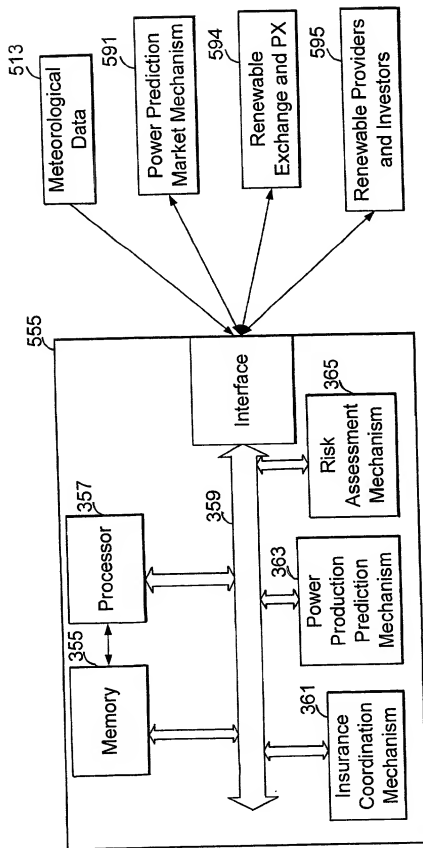


FIG. 3

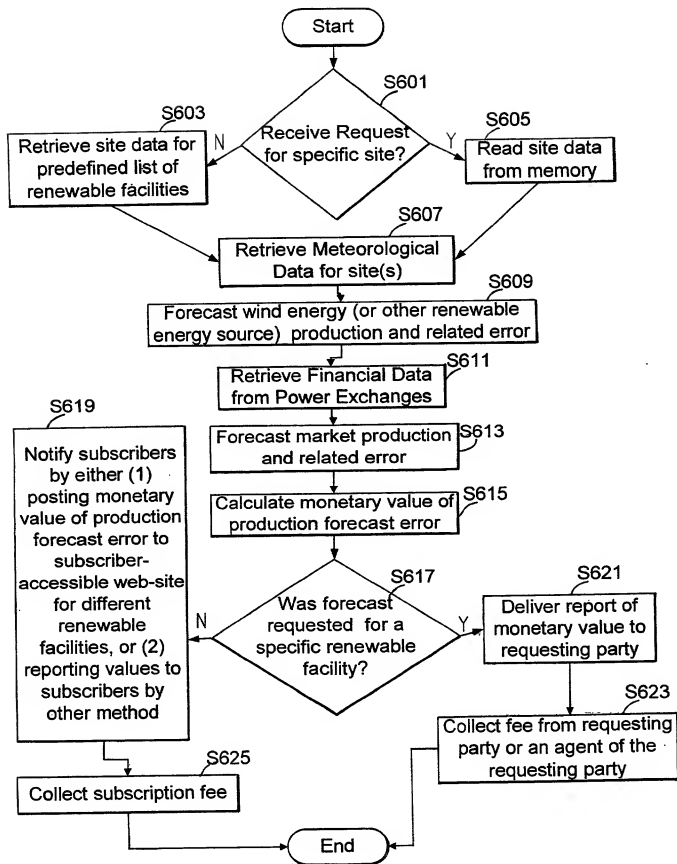
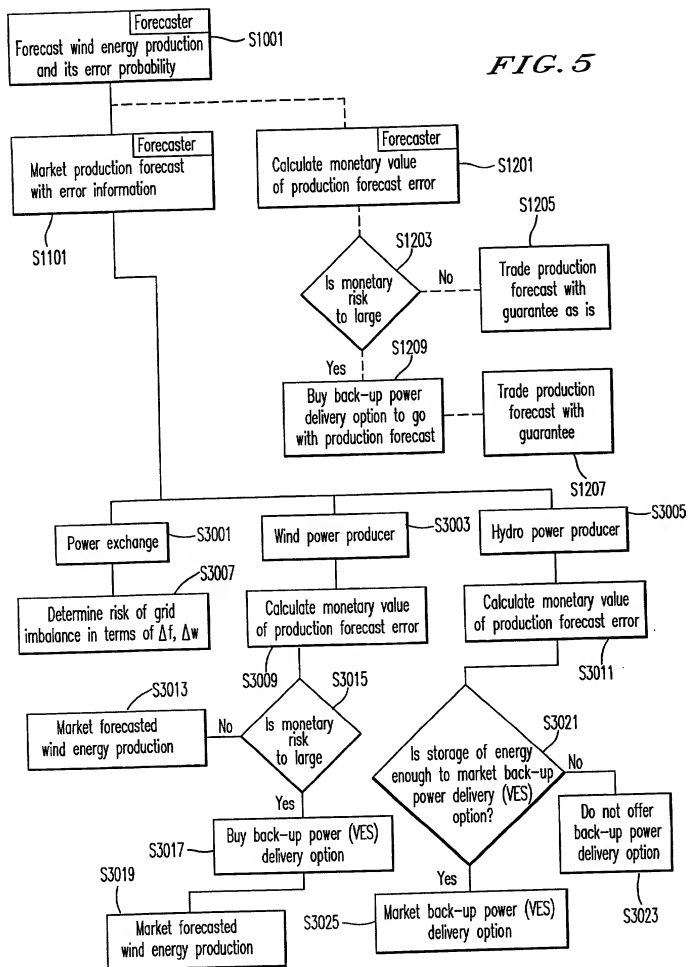


FIG. 4

FIG. 5



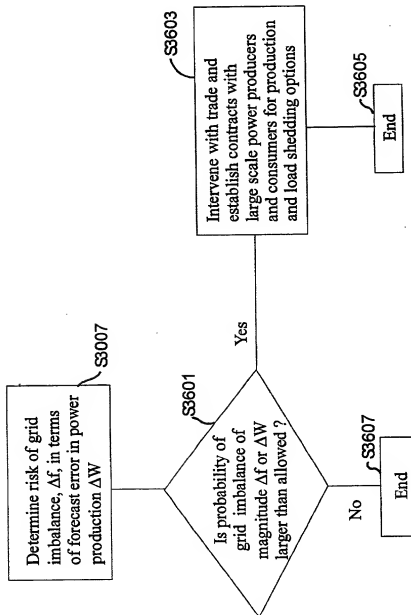


FIG. 6

FIG. 6

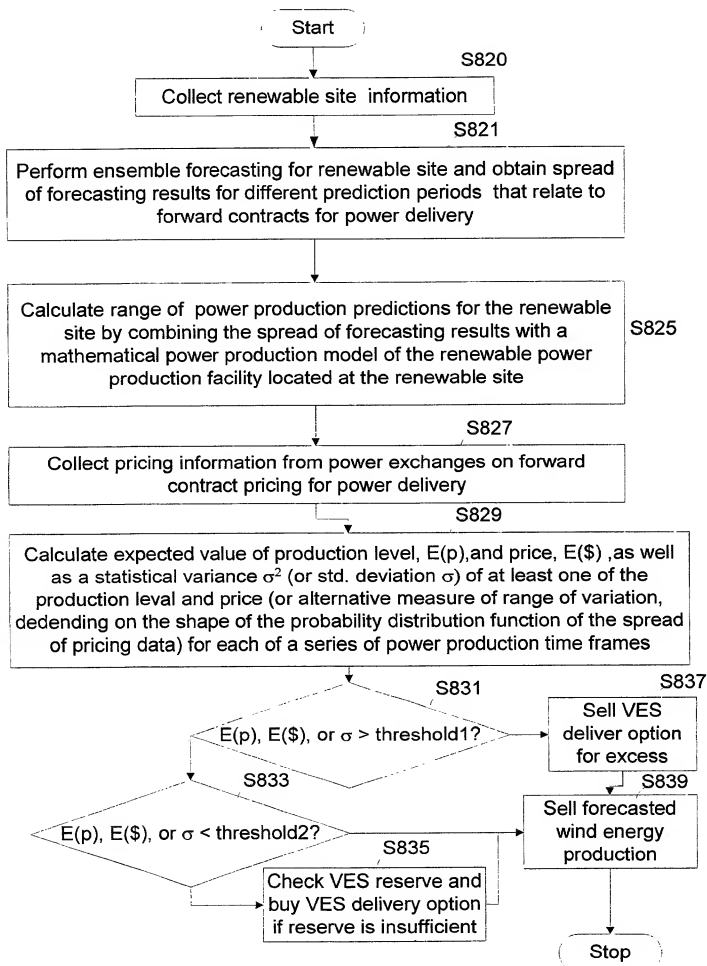


Figure 7

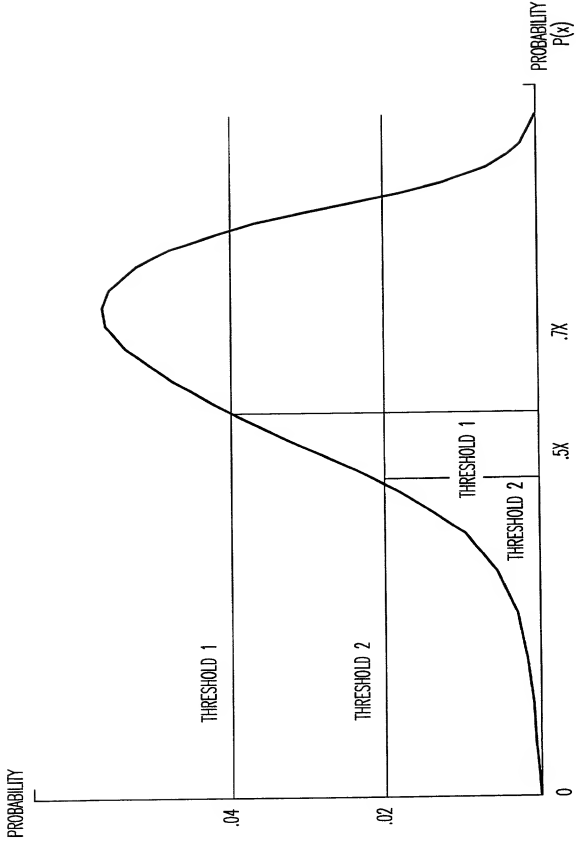


FIG. 8

FIG. 8

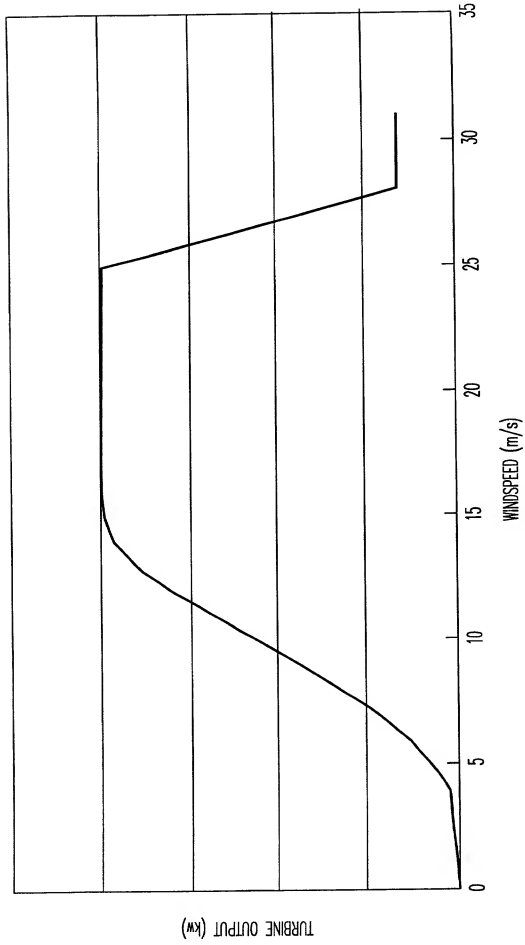
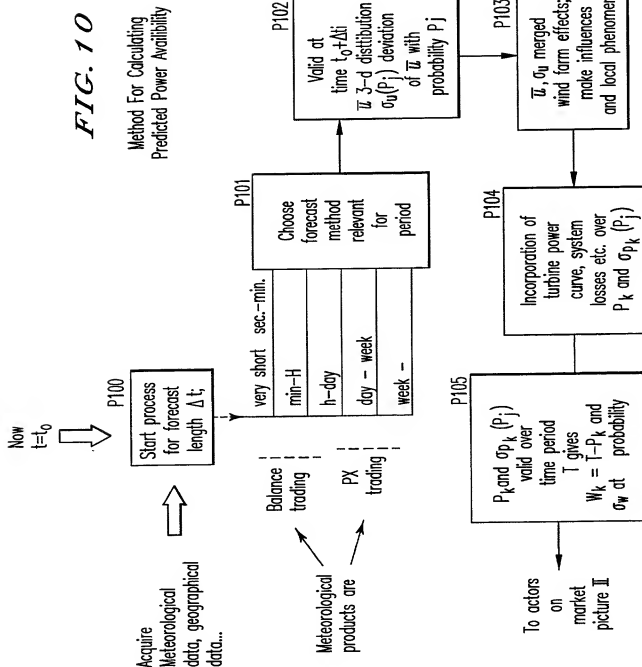


FIG. 9

10023399.122101



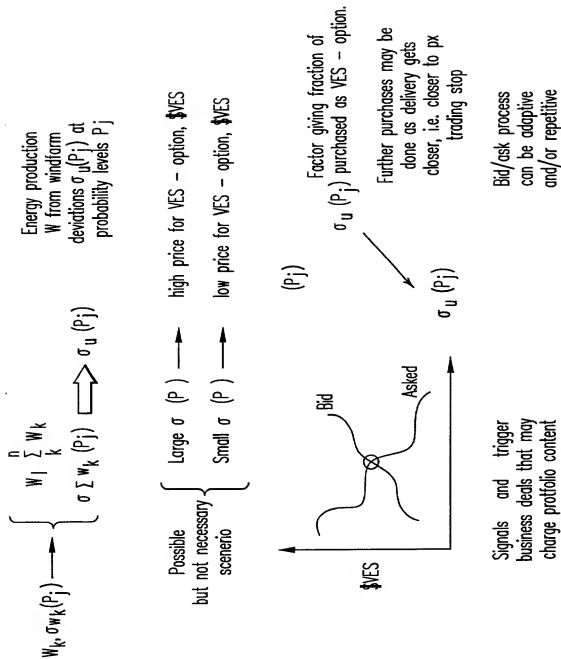
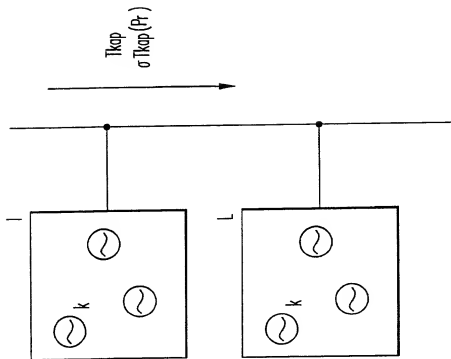


FIG. 11

Relationship of VES pricing
to meteorological forecast
probability values



Transmission capacity
may have uncertainty
 $\sigma \tau_{kap}(P_r)$ at probability
level P_r

- An actors trading block may consist of contribulins from several farms

$$\text{trading block} = \sum_1 W_L + \sum_2 W_L \sum \tau_{kap_1} + \sum_3 W_{VES_1} \\ + \sum_4 W_{VES_2} \sum \tau_{kap_2} + \dots$$

- An actor may trade mixes of He/she may trade above or below sum

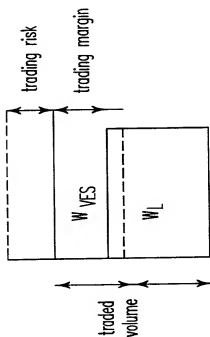


FIG. 12

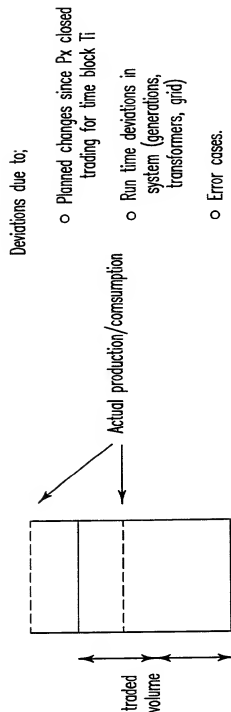


FIG. 13

Deviations dealt with through balance trade and through frequency control by system operator.

Meteorological products for relevant time frames have market value.

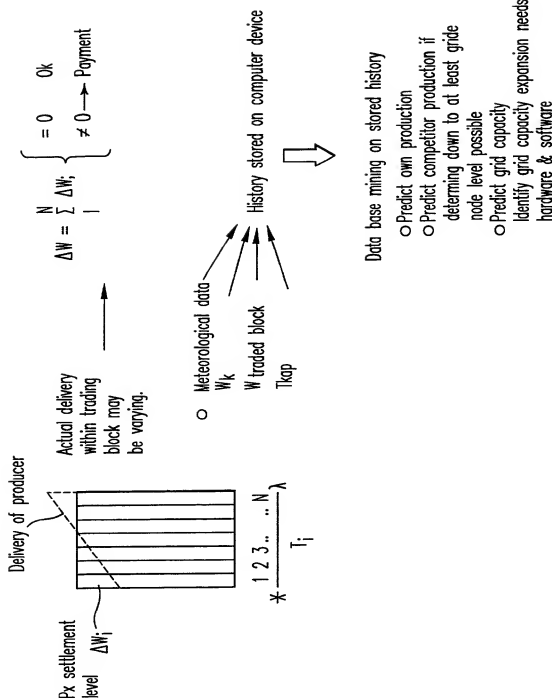


FIG. 14

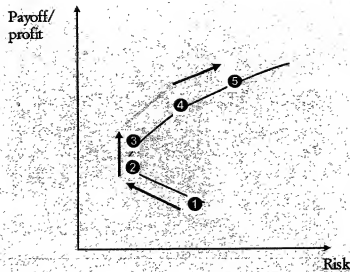
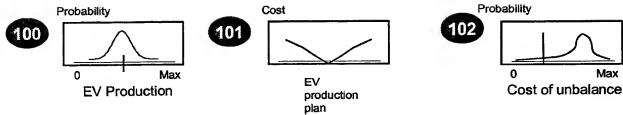


Figure 15

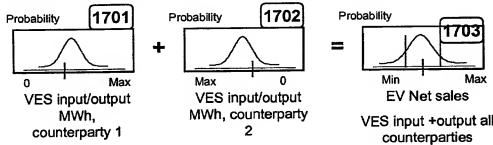


Calculation of WF risks in options and VES

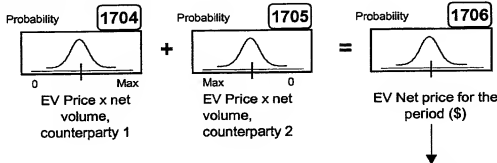
Figure 16

Calculation of Hydro's risks in VES

Volume risk in VES



Price risk in VES



The pdf for net price for each period is discounted to present value and summed to a total uncertainty

Risk of non optimal usage of hydro storage, due to spill of water and selling on non-preferred hours

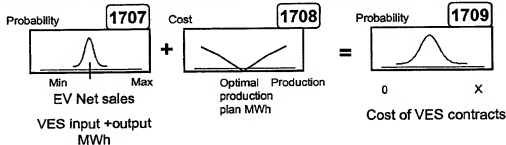


Figure 17

PX PX options market

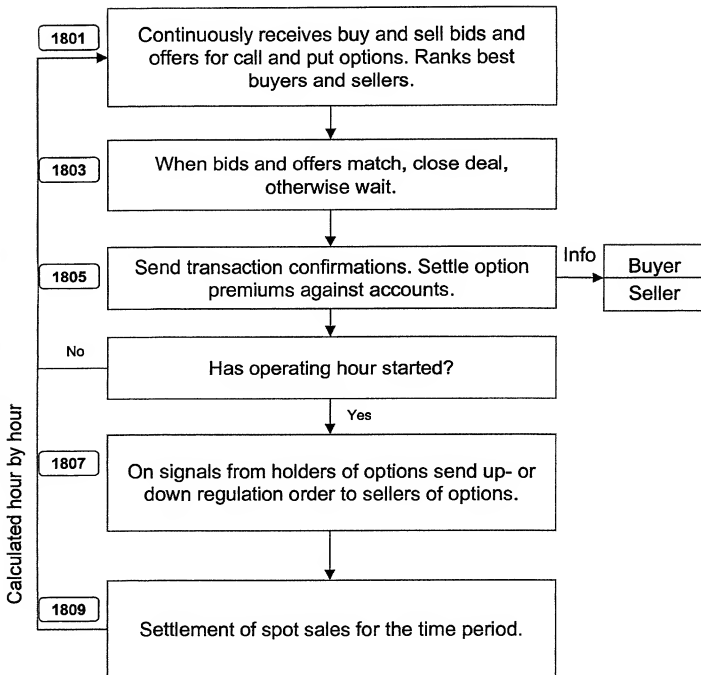


Figure 18

PX Bilateral options market

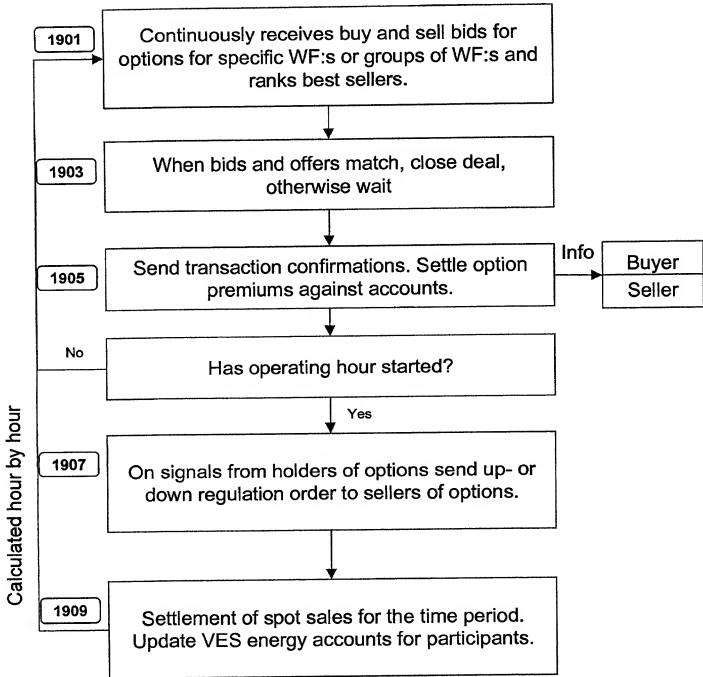


Figure 19

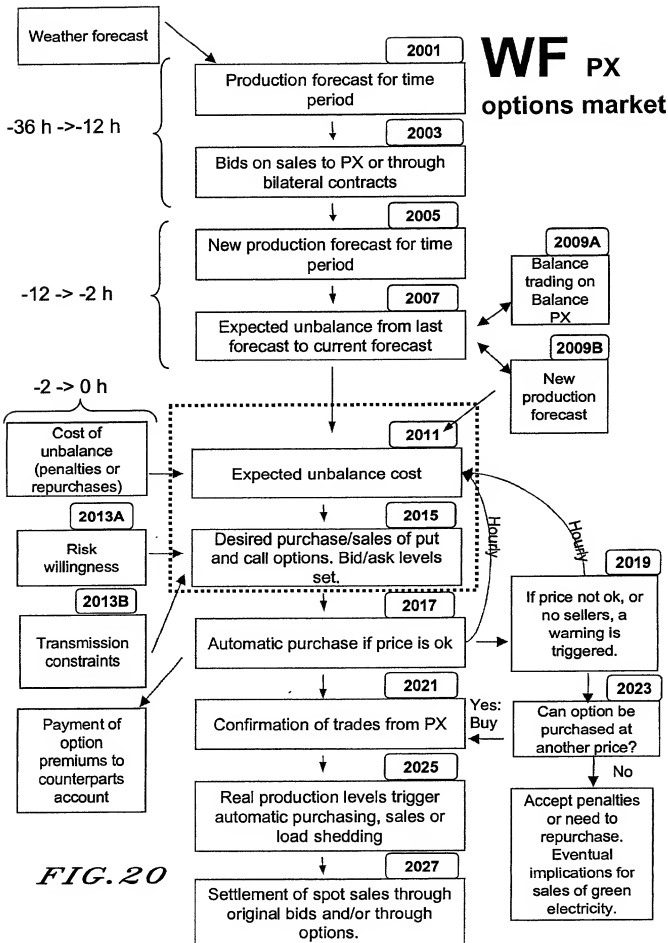


FIG. 20

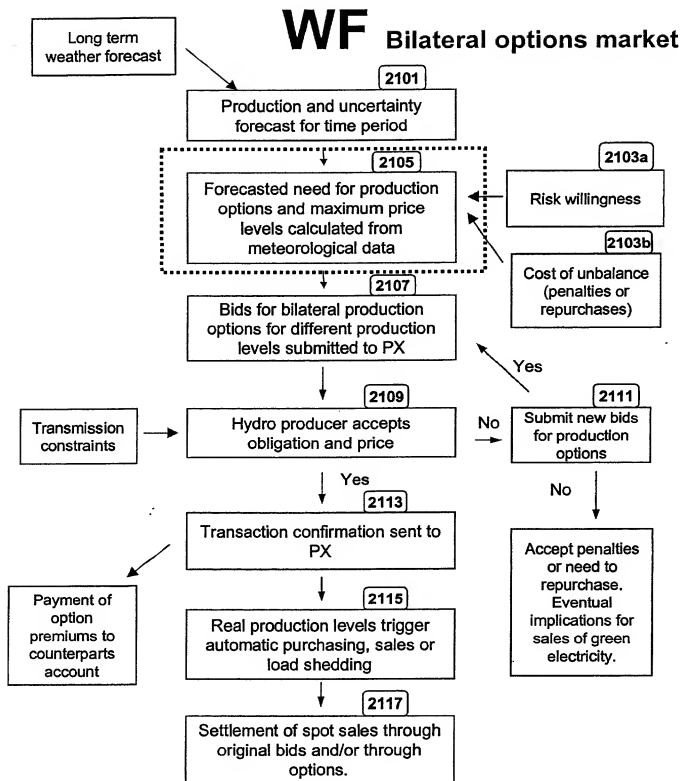


FIG. 21

Hydro PX options market

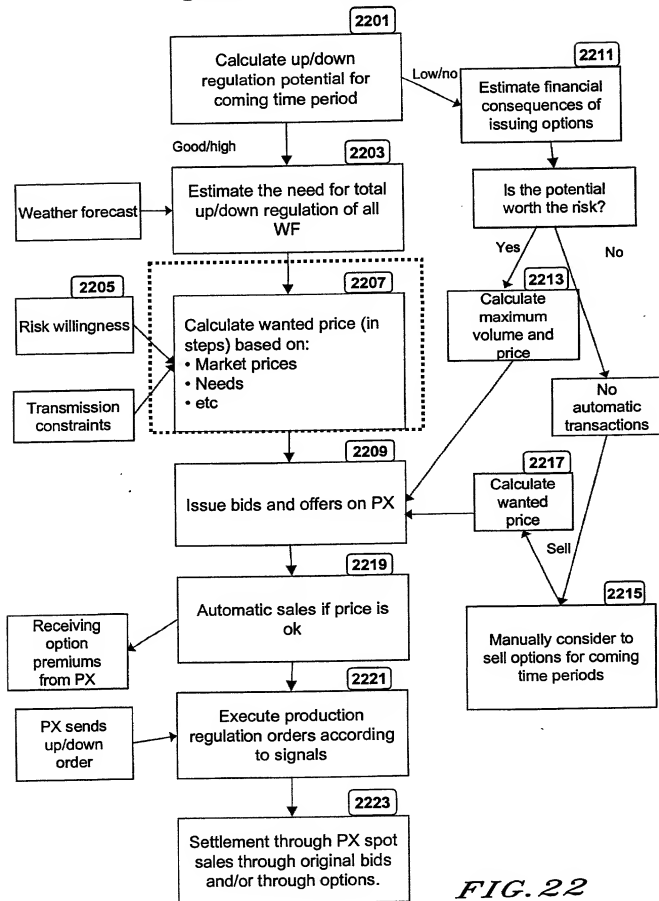


FIG. 22

Hydro Bilateral options market

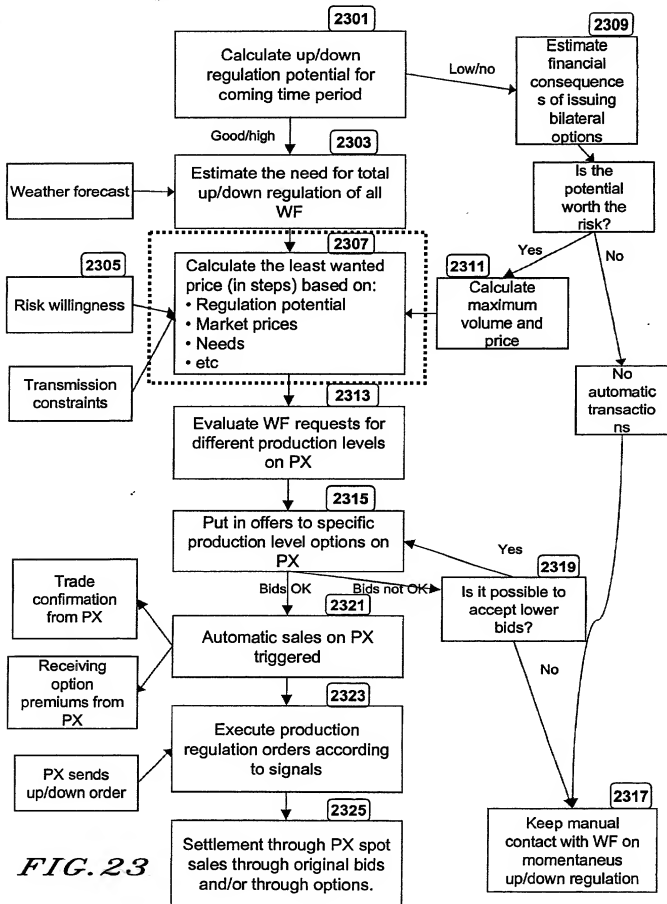


FIG. 23